```
RRRRRRRRRRRR     UUU         UUU  NNN         NNN     OOOOOOOOO     FFFFFFFFFFFFFFF  FFFFFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN         NNN     OOOOOOOOO     FFFFFFFFFFFFFFF  FFFFFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN         NNN     OOOOOOOOO     FFFFFFFFFFFFFFF  FFFFFFFFFFFFFFF
RRR         RRR  UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNNNNN      NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNNNNN      NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUU         UUU  NNNNNN      NNN  OOO         OOO  FFF              FFF
RRRRRRRRRRRR     UUU         UUU  NNN   NNN   NNN  OOO         OOO  FFFFFFFFFFFF     FFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN   NNN   NNN  OOO         OOO  FFFFFFFFFFFF     FFFFFFFFFFFF
RRRRRRRRRRRR     UUU         UUU  NNN   NNN   NNN  OOO         OOO  FFFFFFFFFFFF     FFFFFFFFFFFF
RRR   RRR        UUU         UUU  NNN      NNNNNN  OOO         OOO  FFF              FFF
RRR   RRR        UUU         UUU  NNN      NNNNNN  OOO         OOO  FFF              FFF
RRR   RRR        UUU         UUU  NNN      NNNNNN  OOO         OOO  FFF              FFF
RRR      RRR     UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR      RRR     UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR      RRR     UUU         UUU  NNN         NNN  OOO         OOO  FFF              FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN         NNN     OOOOOOOOO     FFF              FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN         NNN     OOOOOOOOO     FFF              FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN         NNN     OOOOOOOOO     FFF              FFF
```

```
_$2

Sym
---
NDX
NDX
NUM
NUM
OPE
OUT
PAC
PAC
PAC
PAC
PAC
PAC
PAC
PAD
PAG
PAG
PAG
PAG
PAG
PAG
PAG
PER
PUT
RCO
RIN

RLI
RNO
RNO
RTY
SAV
STR
STR
STR
STR
STR
STR

STR
STR
STR
STR
STK
STR
STR
STR
STR
STR
STR
STR
STR
STR
```

L 16

```
**FILE**ID**SAVRES



            SSSSSSSS    AAAAAA    VV      VV  RRRRRRRR    EEEEEEEEEE    SSSSSSSS
            SSSSSSSS    AAAAAA    VV      VV  RRRRRRRR    EEEEEEEEEE    SSSSSSSS
          SS          AA      AA  VV      VV  RR      RR  EE          SS
          SS          AA      AA  VV      VV  RR      RR  EE          SS
          SS          AA      AA  VV      VV  RR      RR  EE          SS
          SS          AA      AA  VV      VV  RR      RR  EE          SS
            SSSSSS    AA      AA  VV      VV  RRRRRRRR    EEEEEEEE      SSSSSS
            SSSSSS    AA      AA  VV      VV  RRRRRRRR    EEEEEEEE      SSSSSS
                  SS  AAAAAAAAAA  VV      VV  RR  RR      EE                  SS
                  SS  AAAAAAAAAA  VV      VV  RR  RR      EE                  SS
                  SS  AA      AA    VV  VV    RR    RR    EE                  SS      ....
                  SS  AA      AA    VV  VV    RR    RR    EE                  SS      ....
          SSSSSSSS    AA      AA      VV      RR      RR  EEEEEEEEEE  SSSSSSSS        ....
          SSSSSSSS    AA      AA      VV      RR      RR  EEEEEEEEEE  SSSSSSSS        ....

          LL            IIIIII      SSSSSSSS
          LL            IIIIII      SSSSSSSS
          LL                II    SS
          LL                II    SS
          LL                II    SS
          LL                II    SS
          LL                II      SSSSSS
          LL                II      SSSSSS
          LL                II              SS
          LL                II              SS
          LL                II              SS
          LL                II              SS
          LLLLLLLLLL    IIIIII    SSSSSSSS
          LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
      0001 0 %TITLE 'SAVRES -- Save & Restore'
      0002 0 MODULE SAVRES   (IDENT = 'V04-000'
    P 0003 0                 %BLISS32[, ADDRESSING_MODE(EXTERNAL      = LONG_RELATIVE,
      0004 0                                            NONEXTERNAL   = LONG_RELATIVE)]
      0005 0                 ) =
      0006 1 BEGIN
      0007 1
      0008 1 !
      0009 1 !****************************************************************************
      0010 1 !*                                                                          *
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      0027 1 !*   SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                *
      0028 1 !*                                                                          *
      0029 1 !*                                                                          *
      0030 1 !****************************************************************************
      0031 1 !
      0032 1
      0033 1 !++
      0034 1 ! FACILITY:       DSR (Digital Standard RUNOFF) / DSRPLUS
      0035 1 !
      0036 1 ! ABSTRACT:   SAVE & RESTORE handling and initialization routines
      0037 1 !
      0038 1 ! ENVIRONMENT:   Transportable
      0039 1 !
      0040 1 ! AUTHOR: Ken Alden  CREATION DATE: January, 1983
      0041 1 !
```

```
1 %SBTTL 'Revision History'
1 !
1 ! MODIFIED BY:
1 !
1 !           010     REM00010        Ray Marshall    16-November-1983
1 !                   Changed numeric offsets used in routine SAVINI to using macros
1 !                     so that future changes to GCA, HCT, PHDEF, and/or SCA will
1 !                     have less chance of resulting in failures of the SAVE/RESTORE
1 !                     directives.
1 !
1 !           009     KFA00009        Ken Alden       30-Sep-1983
1 !                   Moved some the the variables from save all to save and
1 !                     vice versa.
1 !
1 !           008     KFA00008        Ken Alden       27-Jul-1983
1 !                   Modified SAVINI with the addition of gca_flag_cmd.
1 !
1 !           007     KFA00007        Ken Alden       5-Jul-1983
1 !                   Modified SAVINI with the addition of sca_flags.
1 !
1 !           006     KAD00006        Keith Dawson    12-May-1983
1 !                   Modified SAVINI slightly -- having adjusted some of the
1 !                     storage locations in GCA.REQ.
1 !
1 !           005     KFA00005        Ken Alden       3-May-1983
1 !                   Added conditional for debugging so XPO_PUTs will only
1 !                     be put if the output file if open.
1 !
1 !           004     KFA00004        Ken Alden       25-Apr-1983
1 !                   Added support for /DEBUG=SAVE.
1 !
1 !           003     KFA00003        Ken Alden       25-Apr-1983
1 !                   Fixed the block_copy macro so it will pick up the first
1 !                   word in the save block properly.
1 !
1 !           002     REM00002        Ray Marshall    07-Mar-1983
1 !                   Global edit of all modules. Updated module names, idents,
1 !                   copyright dates. Changed require files to BLISS library.
1 !
1 !--
```

```
;    84         0082   1 %SBTTL 'Module Level Declarations'
;    85         0083   1 !
;    86         0084   1 ! TABLE OF CONTENTS:
;    87         0085   1 !
;    88         0086   1 !
;    89         0087   1 ! INCLUDE FILES:
;    90         0088   1 !
;    91         0089   1
;    92         0090   1 LIBRARY 'NXPORT:XPORT';                       ! XPORT Library
;    93         0091   1 REQUIRE 'REQ:RNODEF';                         ! RUNOFF variant definitions
;    94         0222   1
;    95       U 0223   1 %IF DSRPLUS %THEN
;    96       U 0224   1 LIBRARY 'REQ:DPLLIB';                         ! DSRPLUS BLISS Library
;    97         0225   1 %ELSE
;    98         0226   1 LIBRARY 'REQ:DSRLIB';                         ! DSR BLISS Library
;    99         0227   1 %FI
;   100         0228   1
;   101         0229   1 !
;   102         0230   1 ! MACROS:
;   103         0231   1 !
;   104         0232   1   MACRO
;   105         0233   1     block_copy (in_adr, length, out_adr)
;   106       M 0234   1       =
;   107       M 0235   1         BEGIN
;   108       M 0236   1         BIND FOO = in_adr : vector;
;   109       M 0237   1         BIND BAR = out_adr :vector;
;   110       M 0238   1
;   111       M 0239   1         INCR I FROM 0 to (length - 1) DO
;   112       M 0240   1             BAR [.I] = .FOO [.I];
;   113       M 0241   1
;   114       M 0242   1         END
;   115         0243   1         %;
;   116         0244   1
;   117         0245   1 ! EQUATED SYMBOLS:
;   118         0246   1 !
;   119         0247   1 ! OWN STORAGE:
;   120         0248   1 !
;   121         0249   1 !
;   122         0250   1 ! EXTERNAL REFERENCES:
;   123         0251   1 !
;   124         0252   1 EXTERNAL LITERAL
;   125         0253   1     rnfloc,
;   126         0254   1     rnftms,
;   127         0255   1     rnfwfr,
;   128         0256   1     rnfncs;
;   129         0257   1
;   130         0258   1 EXTERNAL
;   131         0259   1     rnoiob : REF $XPO_IOB(),
;   132         0260   1     irac : irac_definition,
;   133         0261   1     savstk : savstack,
;   134         0262   1     flgt : flgt_definition,
;   135         0263   1     sca : sca_definition,
;   136         0264   1     hct : hct_definition,
;   137         0265   1     gca : gca_definition,
;   138         0266   1     phan : phan_definition,
;   139         0267   1     save : $save_block,
;   140         0268   1     saveall : $saveall_block;
;  141          0269  1
;  142          0270  1   EXTERNAL ROUTINE
;  143          0271  1         erm,
;  144          0272  1         erma;
;  146     0273  1 %SBTTL 'SAVRES -- Save & restore handler module'
;  147     0274  1 GLOBAL ROUTINE savres (handler_code,internal_code) : NOVALUE =
;  148     0275  1
;  149     0276  1 !++
;  150     0277  1 ! FUNCTIONAL DESCRIPTION:
;  151     0278  1 !
;  152     0279  1 !       This routine performs the SAVEs and RESTOREs.
;  153     0280  1 !       This routine will perform up to 20 save/save alls and after that it
;  154     0281  1 !       will remember ten more if the user happened to accidently try a .SAVE
;  155     0282  1 !       The reason for remembering is to more informative to the user by
;  156     0283  1 !       pointing back to where the illegal save occured.  After ten illegal
;  157     0284  1 !       SAVEs, this routine will just ignore the whole command. This of course
;  158     0285  1 !       will skew the restores but we figured, who cares at that point?
;  159     0286  1 !
;  160     0287  1 !       One additional item I would like to point out is that the maximum
;  161     0288  1 !       number of saves(20) is SAVSTK_SIZE.
;  162     0289  1 !
;  163     0290  1 !       The maiximum number of recorded save commands(30) is STKSAV_SAVE.
;  164     0291  1 !
;  165     0292  1 ! FORMAL PARAMETERS:
;  166     0293  1 !
;  167     0294  1 !       HANDLER_CODE indicates which command is to be processed.
;  168     0295  1 !       INTERNAL_CODE indicates where this routine was called: utilities(-1),
;  169     0296  1 !       RSDERM (-2), DOCM(1).
;  170     0297  1 !
;  171     0298  1 ! IMPLICIT INPUTS:        none
;  172     0299  1 !
;  173     0300  1 ! IMPLICIT OUTPUTS:       none
;  174     0301  1 !
;  175     0302  1 ! ROUTINE VALUE and
;  176     0303  1 ! COMPLETION CODES:       none
;  177     0304  1 !
;  178     0305  1 ! SIDE EFFECTS:           none discovered yet
;  179     0306  1 !
;  180     0307  1 !--
;  181     0308  1
;  182     0309  2     BEGIN
;  183     0310  2     OWN
;  184     0311  2         x,                                      !Just a copy of the SAVSTACK depth
;  185     0312  2         savptr;
;  186     0313  2
;  187     0314  2     SELECT .handler_code OF
;  188     0315  2         SET
;  189     0316  2
;  190     0317  2         [h_save] :
;  191     0318  3             BEGIN
;  192     0319  3             !a .SAVE command has been hit.
;  193     0320  3             !This section will save all the necessary values of items the utility
;  194     0321  3             !programs may alter.  Tab stops have also been saved since it was thought
;  195     0322  3             !they may be saved often without the need for .SAVE ALL.
;  196     0323  3
;  197     0324  3             !Let's check to see if there is any more room for one more save.
;  198     0325  3              x = .savstk [0, savstk_depth] + 1;
;  199     0326  3
;  200     0327  3              IF   .x  GTR  savstk_size
;  201     0328  3              THEN
;  202     0329  3                  erma (rnftms, false);!Already at maximum save depth, ignore and issue error.
;  203       0330  3
;  204       0331  3                  !Remember how the .SAVE was started.(even if we're 'ignoring' it)
;  205       0332  3                  !Only if the number of SAVEs is fewer than 30(STKSAV_SIZE).
;  206       0333  3                  IF .x GTR stksav_size
;  207       0334  3                  THEN
;  208       0335  3                      RETURN;                                      !Forget this command, user has really extend
;  209       0336  3                  !
;  210       0337  3                  ! Show whether this is a save or save_all and output the nesting
;  211       0338  3                  ! level if user asked for /debug=save.
;  212       0339  3                  !
;  213       0340  3                  IF .gca_debug_save and NOT .gca_skip_out
;  214       0341  3                  THEN
;  215       0342  4                      BEGIN
;  216     P 0343  4                      $XPO_PUT ( IOB    = .rnoiob
;  217     P 0344  4                             ,STRING = $STR_CONCAT( '.SAVE '
;  218     P 0345  4                                                   ,'('
;  219     P 0346  4                                                   ,$STR_ASCII(.x)
;  220     P 0347  4                                                   ,')'
;  221       0348  4                                                  ));
;  222       0349  3                      END;
;  223       0350  3
;  224       0351  3                   savstk [0, savstk_depth] = .x;                 !Save new stack depth.
;  225       0352  3                   savstk [.x, savstk_source] = .handler_code;    !Remember command.
;  226       0353  3                   savstk [.x, savstk_req_d] = .gca_req_depth;    !Remember .REQUIRE depth.
;  227       0354  3                   savstk [.x, savstk_ipagen] = .irac_ipagen;     !Remember input page number.
;  228       0355  3                   savstk [.x, savstk_iseqn] = .irac_iseqn;       !Remember input line number.
;  229       0356  3                   savstk [.x, savstk_fspecp] = .irac_fspecp;     !Remember file spec.
;  230       0357  3                   savstk [.x, savstk_fspecc] = .irac_fspecc;     !File spec length
;  231       0358  3
;  232       0359  3                  IF  .x GTR  savstk_size
;  233       0360  3                  THEN
;  234       0361  3                     RETURN; ! We've make a record of the save but don't do anything.
;  235       0362  3
;  236       0363  3                 !Now, get some memory to store the save values.
;  237       0364  3                $XPO_GET_MEM( FULLWORDS = save_length, RESULT = savptr);
;  238       0365  3                 savstk [.x, savstk_address] = .savptr;           !Save pointer to starting address of save bl
;  239       0366  3
;  240       0367  3                !Finally, we perform the save by copying the SAVEALL storage area to our dynamic stack.
;  241       0368  3                block_copy (flgt, save_length, .savptr);
;  242       0369  3
;  243       0370  2                END;
;  244       0371  2
;  245       0372  2            [h_save_all] :
;  246       0373  3                BEGIN
;  247       0374  3                !a Save All command has been hit.
;  248       0375  3                !A .SAVE ALL saves all that a .SAVE command saves in addition to several
;  249       0376  3                !other flags and action bits.
;  250       0377  3
;  251       0378  3                !Let's check to see if there is any more room for one more save all.
;  252       0379  3                 x = .savstk [0, savstk_depth] + 1;
;  253       0380  3
;  254       0381  3                 IF  .x GTR  savstk_size  THEN
;  255       0382  3                    erma (rnftms, false);!Already at maximum save depth, ignore and issue error.
;  256       0383  3
;  257       0384  3                 !Remember how the .SAVE ALL was started.
;  258       0385  3                 !Only if the number of SAVE ALLs is fewer than 30(STKSAV_SIZE).
;  259       0386  3                 !
;   3        IF .x GTR stksav_size  THEN
;   3            RETURN;                                              !Forget this command, user has really extend
;   3        !
;   3        ! Show whether this is a save or save_all and output the nesting
;   3        ! level if user asked for /debug=save.
;   3        !
;   3        IF .gca_debug_save and NOT .gca_skip_out
;   3        THEN
;   4            BEGIN
; P 4            $XPO_PUT ( IOB     = .rnoiob
; P 4                  ,STRING = $STR_CONCAT( '.SAVE ALL '
; P 4                                        ,'('
; P 4                                        ,$STR_ASCII(.x)
; P 4                                        ,')'
;   4                                       ));
;   3            END;
;   3
;   3        savstk [0, savstk_depth] = .x;                           !Save new stack depth.
;   3        savstk [.x, savstk_source] = .handler_code;              !Remember command.
;   3        savstk [.x, savstk_req_d] = .gca_req_depth;              !Remember .REQUIRE depth.
;   3        savstk [.x, savstk_ipagen] = .irac_ipagen;               !Remember input page number.
;   3        savstk [.x, savstk_iseqn] = .irac_iseqn;                 !Remember input line number.
;   3        savstk [.x, savstk_fspecp] = .irac_fspecp;               !Remember file spec.
;   3        savstk [.x, savstk_fspecc] = .irac_fspecc;               !File spec length
;   3
;   3        IF   .x GTR  savstk_size  THEN
;   3           RETURN; ! We've make a record of the save but don't do anything.
;   3
;   3       !Now, get some memory to store the save values.
;   3       $XPO_GET_MEM( FULLWORDS = saveall_length, RESULT = savptr);
;   3        savstk [.x, savstk_address] = .savptr;                   !Save pointer to starting address of save bl
;   3
;   3       !Finally, we perform the save by copying the SAVEALL storage area to our dynamic stack.
;   3       block_copy (flgt, saveall_length, .savptr);
;   3
;   2       END;
;   2
;   2    [h_restore] :
;   3       BEGIN
;   3       !a Restore command has been hit. There may have been some save commands
;   3       !that were ignored because of too many saves.  Checking for that..
;   3
;   3       x = .savstk [0, savstk_depth];           !What's the current stack depth?
;   3
;   3       IF .x GTR savstk_size
;   3       THEN !User has asked for more saves than possible.
;   4          BEGIN
;   4          savstk [0, savstk_depth] = .savstk [0, savstk_depth] - 1;!Ignore this save.
;   4          IF .internal_code EQL 1               !User requested this restore, issue warning.
;   4          THEN                                  !Otherwise do it silently.
;   4             erma (rnftms, false);
;   4          RETURN;
;   3          END;
;   3       !
;   3       ! Show that a restore is being done and output the nesting
;   3       ! level if user asked for /debug=save.
;   3       !
;   317        0444  3              IF .gca_debug_save and NOT .gca_skip_out
;   318        0445  3              THEN
;   319        0446  4                   BEGIN
;   320      P 0447  4                   $XPO_PUT ( IOB     = .rnoiob
;   321      P 0448  4                      ,STRING = $STR_CONCAT( '.RESTORE  '
;   322      P 0449  4                                            ,'('
;   323      P 0450  4                                            ,$STR_ASCII(.x)
;   324      P 0451  4                                            ,')'
;   325        0452  4                                            ));
;   326        0453  4                   IF .savstk [.x, savstk_source] EQL h_save
;   327        0454  4                   THEN
;   328      P 0455  4                        $XPO_PUT ( IOB     = .rnoiob
;   329      P 0456  4                              ,STRING = $STR_CONCAT( 'Corresponds to SAVE on line '
;   330      P 0457  4                                                    ,$STR_ASCII(.savstk [.x, savstk_iseqn])
;   331      P 0458  4                                                    ,' page '
;   332      P 0459  4                                                    ,$STR_ASCII(.savstk [.x, savstk_ipagen])
;   333      P 0460  4                                                    ,' of input file '
;   334      P 0461  4                                                    ,(.savstk [.x, savstk_fspecc]
;   335      P 0462  4                                                    ,.savstk [.x, savstk_fspecp])
;   336        0463  5                                                    ))
;   337        0464  4                    ELSE
;   338      P 0465  4                         $XPO_PUT ( IOB     = .rnoiob
;   339      P 0466  4                              ,STRING = $STR_CONCAT( 'Corresponds to SAVE ALL on line '
;   340      P 0467  4                                                    ,$STR_ASCII(.savstk [.x, savstk_iseqn])
;   341      P 0468  4                                                    ,' page '
;   342      P 0469  4                                                    ,$STR_ASCII(.savstk [.x, savstk_ipagen])
;   343      P 0470  4                                                    ,' of input file '
;   344      P 0471  4                                                    ,(.savstk [.x, savstk_fspecc]
;   345      P 0472  4                                                    ,.savstk [.x, savstk_fspecp])
;   346        0473  4                                                    ));
;   347        0474  4
;   348        0475  3                   END;
;   349        0476  3
;   350        0477  3              !Now stored in the SAVSTKis the list of all the saves.  Each
;   351        0478  3              !item is the type of save (SAVE or SAVE ALL). So below we..
;   352        0479  3              SELECT .savstk [.x, savstk_source] OF
;   353        0480  3                SET                        !Determine what to restore. (if anything)
;   354        0481  3
;   355        0482  3                 [h_save] :
;   356        0483  4                    BEGIN
;   357        0484  4                    !The last SAVE was just the small save.
;   358        0485  4
;   359        0486  4                    !Is this restore in same file as corresponding SAVE/SAVEALL?
;   360        0487  4                    IF  .SAVSTK [.X, SAVSTK_REQ_D] NEQ .GCA_REQ_DEPTH
;   361        0488  4                    THEN
;   362        0489  5                        BEGIN
;   363        0490  5                        ERMA (RNFWFR, FALSE);                              !Wrong File for Restore
;   364        0491  5                        RETURN;
;   365        0492  4                        END;
;   366        0493  4
;   367        0494  4                    !Update the address counted-list with a starting address of zero for debugging.
;   368        0495  4                    SAVPTR = .SAVSTK [.X, SAVSTK_ADDRESS];
;   369        0496  4                    SAVSTK [.X, SAVSTK_ADDRESS] = 0;
;   370        0497  4
;   371        0498  4                    !We may now copy the SAVEd block over to their 'active' area.
;   372        0499  4                    block_copy (.SAVPTR, SAVE_LENGTH, FLGT);
;   373        0500  4
;  374     0501  4             !Return the memory since we don't need it any more
;  375     0502  4             $XPO_FREE_MEM( BINARY_DATA = (SAVE_LENGTH, .SAVPTR ));
;  376     0503  4
;  377     0504  4             !And finally decrement the number of SAVEs by one.
;  378     0505  4             SAVSTK [0, SAVSTK_DEPTH] = .SAVSTK [0, SAVSTK_DEPTH] - 1;
;  379     0506  3             END;
;  380     0507  3
;  381     0508  3         [h_save_all] :
;  382     0509  4             BEGIN
;  383     0510  4             !This restore is for a Save All.
;  384     0511  4             !The code in this section is just a reverse of the .SAVE ALL area.
;  385     0512  4
;  386     0513  4             !Is this restore in same file as corresponding SAVE/SAVEALL?
;  387     0514  4             IF  .SAVSTK [.X, SAVSTK_REQ_D] NEQ .GCA_REQ_DEPTH
;  388     0515  4             THEN
;  389     0516  5                 BEGIN
;  390     0517  5                 ERMA (RNFWFR, FALSE);                   !Wrong File for Restore
;  391     0518  5                 RETURN;
;  392     0519  4                 END;
;  393     0520  4
;  394     0521  4             !Update the address counted-list with a starting address of zero for debugging.
;  395     0522  4             SAVPTR = .SAVSTK [.X, SAVSTK_ADDRESS];
;  396     0523  4             SAVSTK [.X, SAVSTK_ADDRESS] = 0;
;  397     0524  4
;  398     0525  4             !We may now copy the SAVEd block over to their 'active' area.
;  399     0526  4             block_copy (.SAVPTR, SAVEALL_LENGTH, FLGT);
;  400     0527  4
;  401     0528  4             !Return the memory since we don't need it any more
;  402     0529  4             $XPO_FREE_MEM( BINARY_DATA = (SAVEALL_LENGTH, .SAVPTR ));
;  403     0530  4
;  404     0531  4             !And finally decrement the number of SAVEs by one.
;  405     0532  4             SAVSTK [0, SAVSTK_DEPTH] = .SAVSTK [0, SAVSTK_DEPTH] - 1;
;  406     0533  4
;  407     0534  3             END;
;  408     0535  3
;  409     0536  3         [OTHERWISE] :
;  410     0537  4             BEGIN
;  411     0538  4             !Nothing more has been 'SAVEd' in this file; issue error and return.
;  412     0539  4             ERMA (RNFNCS, FALSE);             !No corresponding saves.
;  413     0540  4             RETURN;
;  414     0541  3             END;
;  415     0542  3
;  416     0543  3         TES;                           !End of RESTORE set.
;  417     0544  2     END;                       !End of RESTORE
;  418     0545  2
;  419     0546  2     TES;                       !End of SAVRES set.
;  420     0547  1 END;                           ! end of routine SAVRES

                                                           .TITLE  SAVRES SAVRES -- Save & Restore
                                                           .IDENT  \V04-000\

                                                           .PSECT  $PLIT$,NOWRT,NOEXE,2

                       20  45  56  41  53  2E  00000 P.AAD:  .ASCII  \.SAVE \                              ;
                                           28  00006 P.AAE:  .ASCII  \(\                                   ;
                                           29  00007 P.AAF:  .ASCII  \)\                                   ;
```

```
                    20  4C  4C  41  20  45  56  41  53  2E  00008 P.AAM:   .ASCII   \.SAVE ALL \                                ;
                                                        28  00012 P.AAN:   .ASCII   \(\                                         ;
                                                        29  00013 P.AAO:   .ASCII   \)\                                         ;
                    20  20  45  52  4F  54  53  45  52  2E  00014 P.AAV:   .ASCII   \.RESTORE  \                                ;
                                                        28  0001E P.AAW:   .ASCII   \(\                                         ;
                                                        29  0001F P.AAX:   .ASCII   \)\                                         ;
20  6F  74  20  73  64  6E  6F  70  73  65  72  72  6F  43  00020 P.ABE:   .ASCII   \Corresponds to SAVE on line \              ;
        20  65  6E  69  6C  20  6E  6F  20  45  56  41  53  0002F                                                           ;
                                    20  65  67  61  70  20  0003C P.ABF:   .ASCII   \ page \                                    ;
20  65  6C  69  66  20  74  75  70  6E  69  20  66  6F  20  00042 P.ABG:   .ASCII   \ of input file \                           ;
20  6F  74  20  73  64  6E  6F  70  73  65  72  72  6F  43  00051 P.ABN:   .ASCII   \Corresponds to SAVE ALL on line \          ;
6E  69  6C  20  6E  6F  20  4C  4C  41  20  45  56  41  53  00060                                                           ;
                                                    20  65  0006F                                                           ;
                                    20  65  67  61  70  20  00071 P.ABO:   .ASCII   \ page \                                    ;
20  65  6C  69  66  20  74  75  70  6E  69  20  66  6F  20  00077 P.ABP:   .ASCII   \ of input file \                           ;

                                                                           .PSECT   $OWN$,NOEXE,2

                                                            00000 X:       .BLKB    4
                                                            00004 SAVPTR:  .BLKB    4
                                                      0006  00008 $STR$STRING0:
                                                                           .WORD    6                                           ;
                                                    01  0E  0000A          .BYTE    14, 1                                       ;
                                                00000000'   0000C          .ADDRESS P.AAD                                       ;
                                                      0001  00010 $STR$STRING1:
                                                                           .WORD    1                                           ;
                                                    01  0E  00012          .BYTE    14, 1                                       ;
                                                00000000'   00014          .ADDRESS P.AAE                                       ;
                                                      0001  00018 $STR$STRING3:
                                                                           .WORD    1                                           ;
                                                    01  0E  0001A          .BYTE    14, 1                                       ;
                                                00000000'   0001C          .ADDRESS P.AAF                                       ;
                                                      000A  00020 $STR$STRING0:
                                                                           .WORD    10                                          ;
                                                    01  0E  00022          .BYTE    14, 1                                       ;
                                                00000000'   00024          .ADDRESS P.AAM                                       ;
                                                      0001  00028 $STR$STRING1:
                                                                           .WORD    1                                           ;
                                                    01  0E  0002A          .BYTE    14, 1                                       ;
                                                00000000'   0002C          .ADDRESS P.AAN                                       ;
                                                      0001  00030 $STR$STRING3:
                                                                           .WORD    1                                           ;
                                                    01  0E  00032          .BYTE    14, 1                                       ;
                                                00000000'   00034          .ADDRESS P.AAO                                       ;
                                                      000A  00038 $STR$STRING0:
                                                                           .WORD    10                                          ;
                                                    01  0E  0003A          .BYTE    14, 1                                       ;
                                                00000000'   0003C          .ADDRESS P.AAV                                       ;
                                                      0001  00040 $STR$STRING1:
                                                                           .WORD    1                                           ;
                                                    01  0E  00042          .BYTE    14, 1                                       ;
                                                00000000'   00044          .ADDRESS P.AAW                                       ;
                                                      0001  00048 $STR$STRING3:
                                                                           .WORD    1                                           ;
                                                    01  0E  0004A          .BYTE    14, 1                                       ;
                                                00000000'   0004C          .ADDRESS P.AAX                                       ;
                                                      001C  00050 $STR$STRING0:
```

```
                                                .WORD   28                                          ;
                       01   0E    00052         .BYTE   14, 1                                       ;
                        00000000' 00054         .ADDRESS P.ABE                                      ;
                             0006 00058 $STR$STRING2:
                                                .WORD   6                                           ;
                       01   0E    0005A         .BYTE   14, 1                                       ;
                        00000000' 0005C         .ADDRESS P.ABF                                      ;
                             000F 00060 $STR$STRING4:
                                                .WORD   15                                          ;
                       01   0E    00062         .BYTE   14, 1                                       ;
                        00000000' 00064         .ADDRESS P.ABG                                      ;
                             0020 00068 $STR$STRING0:
                                                .WORD   32                                          ;
                       01   0E    0006A         .BYTE   14, 1                                       ;
                        00000000' 0006C         .ADDRESS P.ABN                                      ;
                             0006 00070 $STR$STRING2:
                                                .WORD   6                                           ;
                       01   0E    00072         .BYTE   14, 1                                       ;
                        00000000' 00074         .ADDRESS P.ABO                                      ;
                             000F 00078 $STR$STRING4:
                                                .WORD   15                                          ;
                       01   0E    0007A         .BYTE   14, 1                                       ;
                        00000000' 0007C         .ADDRESS P.ABP                                      ;

                                                .EXTRN  RNFLOC, RNFTMS, RNFWFR
                                                .EXTRN  RNFNCS, RNOIOB, IRAC
                                                .EXTRN  SAVSTK, FLGT, SCA
                                                .EXTRN  HCT, GCA, PHAN, SAVE
                                                .EXTRN  SAVEALL, ERM, ERMA
                                                .EXTRN  XST$JOIN, XST$ASCII
                                                .EXTRN  XPO$PUT, XPO$FAILURE
                                                .EXTRN  XPO$ALLOC_MEM, XPO$FREE_MEM

                                                .PSECT  $CODE$,NOWRT,2

                             0FFC 00000         .ENTRY  SAVRES, Save R2,R3,R4,R5,R6,R7,R8,R9,R10,- ; 0274
                                                        R11                                         ;
            5B 00000000G   EF  9E 00002         MOVAB   XST$JOIN, R11                               ;
            5A 00000000G   EF  9E 00009         MOVAB   RNOIOB, R10                                 ;
            59 00000000G   EF  9E 00010         MOVAB   XST$ASCII, R9                               ;
            58 00000000G   EF  9E 00017         MOVAB   IRAC+12, R8                                 ;
            57 00000000G   EF  9E 0001E         MOVAB   XPO$FAILURE, R7                             ;
            56 00000000G   EF  9E 00025         MOVAB   GCA+188, R6                                 ;
            55 00000000G   EF  9E 0002C         MOVAB   SAVSTK, R5                                  ;
            54 00000000'   EF  9E 00033         MOVAB   X, R4                                       ;
            5E             08  C2 0003A         SUBL2   #8, SP                                      ;
            53        04   AC  D0 0003D         MOVL    HANDLER CODE, R3                            ; 0314
  000000B2  8F             53  D1 00041         CMPL    R3, #178                                    ; 0317
                           03  13 00048         BEQL    1$                                          ;
                         00DC  31 0004A         BRW     7$                                          ;
64          65             01  C1 0004D 1$:     ADDL3   #1, SAVSTK, X                               ; 0325
            14             64  D1 00051         CMPL    X, #20                                      ; 0327
                           0F  15 00054         BLEQ    2$                                          ;
                           7E  D4 00056         CLRL    -(SP)                                       ; 0329
               00000000G   8F  DD 00058         PUSHL   #RNFTMS                                     ;
  00000000G EF             02  FB 0005E         CALLS   #2, ERMA                                    ;
            1E             64  D1 00065 2$:     CMPL    X, #30                                      ; 0333
```

```
                                                     75 14 00068         BGTR    4$                                           ;
                         36        B8  A6            05 E1 0006A         BBC     #5, GCA+116, 3$                              ; 0340
                                       32       B4   A6 E8 0006F         BLBS    GCA+112, 3$                                  ;
                                       52            6A D0 00073         MOVL    RNOIOB, R2                                   ; 0348
                                                     7E D4 00076         CLRL    -(SP)                                        ;
                                                     64 DD 00078         PUSHL   X                                            ;
                                       7E     0903   8F 3C 0007A         MOVZWL  #2307, -(SP)                                 ;
                                       69            03 FB 0007F         CALLS   #3, XST$ASCII                                ;
                                                18   A4 9F 00082         PUSHAB  $STR$STRING3                                 ;
                                                     50 DD 00085         PUSHL   R0                                           ;
                                                10   A4 9F 00087         PUSHAB  $STR$STRING1                                 ;
                                                08   A4 9F 0008A         PUSHAB  $STR$STRING0                                 ;
                                       6B            04 FB 0008D         CALLS   #4, XST$JOIN                                 ;
                                   44  A2            50 D0 00090         MOVL    R0, 68(R2)                                   ;
                                   2C  A2            07 90 00094         MOVB    #7, 44(R2)                                   ;
                                                     57 DD 00098         PUSHL   R7                                           ;
                                                     7E D4 0009A         CLRL    -(SP)                                        ;
                                                     52 DD 0009C         PUSHL   R2                                           ;
                            00000000G  EF            03 FB 0009E         CALLS   #3, XPO$PUT                                  ;
                                       51            64 D0 000A5 3$:     MOVL    X, R1                                        ; 0351
                                       65            51 D0 000A8         MOVL    R1, SAVSTK                                   ;
                         50            51            1C C5 000AB         MULL3   #28, R1, R0                                  ; 0352
                                                08 A540 9F 000AF         PUSHAB  SAVSTK+8[R0]                                 ;
                                       9E            53 D0 000B3         MOVL    R3, @(SP)+                                   ;
                                                0C A540 9F 000B6         PUSHAB  SAVSTK+12[R0]                                ; 0353
                                       9E            66 D0 000BA         MOVL    GCA+188, @(SP)+                              ;
                                                10 A540 9F 000BD         PUSHAB  SAVSTK+16[R0]                                ; 0354
                                       9E            68 D0 000C1         MOVL    IRAC+12, @(SP)+                              ;
                                                14 A540 9F 000C4         PUSHAB  SAVSTK+20[R0]                                ; 0355
                                       9E       FC   A8 D0 000C8         MOVL    IRAC+8, @(SP)+                               ;
                                                18 A540 9F 000CC         PUSHAB  SAVSTK+24[R0]                                ; 0356
                                       9E       04   A8 D0 000D0         MOVL    IRAC+16, @(SP)+                              ;
                                                1C A540 9F 000D4         PUSHAB  SAVSTK+28[R0]                                ; 0357
                                       9E       08   A8 D0 000D8         MOVL    IRAC+20, @(SP)+                              ;
                                       14            51 D1 000DC         CMPL    R1, #20                                      ; 0359
                                                     6F 14 000DF 4$:     BGTR    10$                                          ;
                                       6E 02020000   8F D0 000E1         MOVL    #33685504, $XPO$DESC                         ; 0364
                                                04   AE D4 000E8         CLRL    $XPO$DESC+4                                  ;
                                                     57 DD 000EB         PUSHL   R7                                           ;
                                                     7E 7C 000ED         CLRQ    -(SP)                                        ;
                                       7E            01 CE 000EF         MNEGL   #1, -(SP)                                    ;
                                                10   AE 9F 000F2         PUSHAB  $XPO$DESC                                    ;
                                       7E     0294   8F 3C 000F5         MOVZWL  #660, -(SP)                                  ;
                            00000000G  EF            06 FB 000FA         CALLS   #6, XPO$ALLOC_MEM                            ;
                                       05            50 E9 00101         BLBC    $XPO$STATUS, 5$                              ;
                                   04  A4       04   AE D0 00104         MOVL    $XPO$DESC+4, SAVPTR                          ;
                         50            64            1C C5 00109 5$:     MULL3   #28, X, R0                                   ; 0365
                                                04 A540 9F 0010D         PUSHAB  SAVSTK+4[R0]                                 ;
                                       9E       04   A4 D0 00111         MOVL    SAVPTR, @(SP)+                               ;
                                                     50 D4 00115         CLRL    I                                            ; 0368
                                 04 'B440 00000000GEF40 D0 00117 6$:     MOVL    FOO[I], @SAVPTR[I]                           ;
                         EE            50 000000A4   8F F3 00121         AOBLEQ  #164, I, 6$                                  ;
                             000000B3  8F            53 D1 00129 7$:     CMPL    R3, #179                                     ; 0372
                                                     03 13 00130         BEQL    8$                                           ;
                                                   00DC 31 00132         BRW     15$                                          ;
                         64            65            01 C1 00135 8$:     ADDL3   #1, SAVSTK, X                                ; 0379
                                       14            64 D1 00139         CMPL    X, #20                                       ; 0381
```

```
                                                     0F  15 0013C          BLEQ    9$                                          ;
                                                     7E  D4 0013E          CLRL    -(SP)                                       ; 0382
                                           00000000G 8F  DD 00140          PUSHL   #RNFTMS                                     ;
                            00000000G  EF            02  FB 00146          CALLS   #2, ERMA                                    ;
                                       1E            64  D1 0014D  9$:     CMPL    X, #30                                      ; 0387
                                                     75  14 00150  10$:    BGTR    12$                                         ;
                         36       B8   A6            05  E1 00152          BBC     #5, GCA+116, 11$                            ; 0393
                                       32       B4   A6  E8 00157          BLBS    GCA+112, 11$                                ;
                                       52            6A  D0 0015B          MOVL    RNOIOB, R2                                  ; 0401
                                                     7E  D4 0015E          CLRL    -(SP)                                       ;
                                                     64  DD 00160          PUSHL   X                                           ;
                                       7E     0903   8F  3C 00162          MOVZWL  #2307, -(SP)                                ;
                                       69            03  FB 00167          CALLS   #3, XST$ASCII                               ;
                                                30   A4  9F 0016A          PUSHAB  $STR$STRING3                                ;
                                                     50  DD 0016D          PUSHL   R0                                          ;
                                                28   A4  9F 0016F          PUSHAB  $STR$STRING1                                ;
                                                20   A4  9F 00172          PUSHAB  $STR$STRING0                                ;
                                       6B            04  FB 00175          CALLS   #4, XST$JOIN                                ;
                                  44   A2            50  D0 00178          MOVL    R0, 68(R2)                                  ;
                                  2C   A2            07  90 0017C          MOVB    #7, 44(R2)                                  ;
                                                     57  DD 00180          PUSHL   R7                                          ;
                                                     7E  D4 00182          CLRL    -(SP)                                       ;
                                                     52  DD 00184          PUSHL   R2                                          ;
                            00000000G  EF            03  FB 00186          CALLS   #3, XPO$PUT                                 ;
                                       51            64  D0 0018D  11$:    MOVL    X, R1                                       ; 0404
                                       65            51  D0 00190          MOVL    R1, SAVSTK                                  ;
                         50            51            1C  C5 00193          MULL3   #28, R1, R0                                 ; 0405
                                                08 A540  9F 00197          PUSHAB  SAVSTK+8[R0]                                ;
                                       9E            53  D0 0019B          MOVL    R3, @(SP)+                                  ;
                                                0C A540  9F 0019E          PUSHAB  SAVSTK+12[R0]                               ; 0406
                                       9E            66  D0 001A2          MOVL    GCA+188, @(SP)+                             ;
                                                10 A540  9F 001A5          PUSHAB  SAVSTK+16[R0]                               ; 0407
                                       9E            68  D0 001A9          MOVL    IRAC+12, @(SP)+                             ;
                                                14 A540  9F 001AC          PUSHAB  SAVSTK+20[R0]                               ; 0408
                                       9E       FC   A8  D0 001B0          MOVL    IRAC+8, @(SP)+                              ;
                                                18 A540  9F 001B4          PUSHAB  SAVSTK+24[R0]                               ; 0409
                                       9E       04   A8  D0 001B8          MOVL    IRAC+16, @(SP)+                             ;
                                                1C A540  9F 001BC          PUSHAB  SAVSTK+28[R0]                               ; 0410
                                       9E       08   A8  D0 001C0          MOVL    IRAC+20, @(SP)+                             ;
                                       14            51  D1 001C4          CMPL    R1, #20                                     ; 0412
                                                     5F  14 001C7  12$:    BGTR    16$                                         ;
                                       6E 02020000   8F  D0 001C9          MOVL    #33685504, $XPO$DESC                        ; 0416
                                                04   AE  D4 001D0          CLRL    $XPO$DESC+4                                 ;
                                                     57  DD 001D3          PUSHL   R7                                          ;
                                                     7E  7C 001D5          CLRQ    -(SP)                                       ;
                                       7E            01  CE 001D7          MNEGL   #1, -(SP)                                   ;
                                                10   AE  9F 001DA          PUSHAB  $XPO$DESC                                   ;
                                       7E     04A8   8F  3C 001DD          MOVZWL  #1192, -(SP)                                ;
                            00000000G  EF            06  FB 001E2          CALLS   #6, XPO$ALLOC_MEM                           ;
                                       05            50  E9 001E9          BLBC    $XPO$STATUS, T3$                            ;
                                  04   A4       04   AE  D0 001EC          MOVL    $XPO$DESC+4, SAVPTR                         ;
                         50            64            1C  C5 001F1  13$:    MULL3   #28, X, R0                                  ; 0417
                                                04 A540  9F 001F5          PUSHAB  SAVSTK+4[R0]                                ;
                                       9E       04   A4  D0 001F9          MOVL    SAVPTR, @(SP)+                              ;
                                                     50  D4 001FD          CLRL    I                                           ; 0420
                                  04 B440 00000000GEF40  D0 001FF  14$:    MOVL    FOO[I], @SAVPTR[I]                          ;
                         EE            50 00000129   8F  F3 00209          AOBLEQ  #297, I, 14$                                ;
```

```
      000000AF  8F           53 D1 00211 15$:    CMPL    R3, #175                                ; 0424
                             0E 12 00218         BNEQ    16$
                64           65 D0 0021A         MOVL    SAVSTK, X                               ; 0429
                14           64 D1 0021D         CMPL    X, #20                                  ; 0431
                             14 15 00220         BLEQ    18$
                             65 D7 00222         DECL    SAVSTK                                  ; 0434
                01      08   AC D1 00224         CMPL    INTERNAL_CODE, #1                       ; 0435
                             01 13 00228 16$:    BEQL    17$
                                04 0022A         RET
                             7E D4 0022B 17$:    CLRL    -(SP)                                   ; 0437
                 00000000G   8F DD 0022D         PUSHL   #RNFTMS
                           01F3 31 00233         BRW     30$
   03      B8  A6            05 E0 00236 18$:    BBS     #5, GCA+116, 20$                        ; 0444
                           0106 31 0023B 19$:    BRW     23$
                F9      B4   A6 E8 0023E 20$:    BLBS    GCA+112, 19$
                52           6A D0 00242         MOVL    RNOIOB, R2                              ; 0452
                             7E D4 00245         CLRL    -(SP)
                             64 DD 00247         PUSHL   X
                7E    0903   8F 3C 00249         MOVZWL  #2307, -(SP)
                69           03 FB 0024E         CALLS   #3, XST$ASCII
                        48   A4 9F 00251         PUSHAB  $STR$STRING3
                             50 DD 00254         PUSHL   R0
                        40   A4 9F 00256         PUSHAB  $STR$STRING1
                        38   A4 9F 00259         PUSHAB  $STR$STRING0
                6B           04 FB 0025C         CALLS   #4, XST$JOIN
            44  A2           50 D0 0025F         MOVL    R0, 68(R2)
            2C  A2           07 90 00263         MOVB    #7, 44(R2)
                             57 DD 00267         PUSHL   R7
                             7E D4 00269         CLRL    -(SP)
                             52 DD 0026B         PUSHL   R2
     00000000G  EF           03 FB 0026D         CALLS   #3, XPO$PUT
                52           6A D0 00274         MOVL    RNOIOB, R2                              ; 0463
   50           64           1C C5 00277         MULL3   #28, X, R0                              ; 0453
                        08 A540 9F 0027B         PUSHAB  SAVSTK+8[R0]
      000000B2  8F           9E D1 0027F         CMPL    @(SP)+, #178
                             53 12 00286         BNEQ    21$
                             7E D4 00288         CLRL    -(SP)                                   ; 0463
                        14 A540 9F 0028A         PUSHAB  SAVSTK+20[R0]
                             9E DD 0028E         PUSHL   @(SP)+
                7E    0903   8F 3C 00290         MOVZWL  #2307, -(SP)
                69           03 FB 00295         CALLS   #3, XST$ASCII
                53           50 D0 00298         MOVL    R0, R3
                             7E D4 0029B         CLRL    -(SP)
   50           64           1C C5 0029D         MULL3   #28, X, R0
                        10 A540 9F 002A1         PUSHAB  SAVSTK+16[R0]
                             9E DD 002A5         PUSHL   @(SP)+
                7E    0903   8F 3C 002A7         MOVZWL  #2307, -(SP)
                69           03 FB 002AC         CALLS   #3, XST$ASCII
   51           64           1C C5 002AF         MULL3   #28, X, R1
                        1C A541 9F 002B3         PUSHAB  SAVSTK+28[R1]
                6E           9E B0 002B7         MOVW    @(SP)+, $STR$STRING5
            02  AE           0E 90 002BA         MOVB    #14, $STR$STRING5+2
            03  AE           01 90 002BE         MOVB    #1, $STR$STRING5+3
                        18 A541 9F 002C2         PUSHAB  SAVSTK+24[R1]
            04  AE           9E D0 002C6         MOVL    @(SP)+, $STR$STRING5+4
                             5E DD 002CA         PUSHL   SP
                        60   A4 9F 002CC         PUSHAB  $STR$STRING4
```

```
                             50  DD 002CF          PUSHL   R0                               :
                        58   A4  9F 002D1          PUSHAB  $STR$STRING2                     :
                             53  DD 002D4          PUSHL   R3                               :
                        50   A4  9F 002D6          PUSHAB  $STR$STRING0                     :
                             51  11 002D9          BRB     22$                              :
                             7E  D4 002DB 21$:     CLRL    -(SP)                            : 0473
                        14 A540  9F 002DD          PUSHAB  SAVSTK+20[R0]                    :
                             9E  DD 002E1          PUSHL   @(SP)+                           :
              7E      0903   8F  3C 002E3          MOVZWL  #2307, -(SP)                     :
              69             03  FB 002E8          CALLS   #3, XST$ASCII                    :
              53             50  D0 002EB          MOVL    R0, R3                           :
                             7E  D4 002EE          CLRL    -(SP)                            :
50            64             1C  C5 002F0          MULL3   #28, X, R0                       :
                        10 A540  9F 002F4          PUSHAB  SAVSTK+16[R0]                    :
                             9E  DD 002F8          PUSHL   @(SP)+                           :
              7E      0903   8F  3C 002FA          MOVZWL  #2307, -(SP)                     :
              69             03  FB 002FF          CALLS   #3, XST$ASCII                    :
51            64             1C  C5 00302          MULL3   #28, X, R1                       :
                        1C A541  9F 00306          PUSHAB  SAVSTK+28[R1]                    :
              6E             9E  B0 0030A          MOVW    @(SP)+, $STR$STRING5             :
           02 AE             0E  90 0030D          MOVB    #14, $STR$STRING5+2              :
           03 AE             01  90 00311          MOVB    #1, $STR$STRING5+3               :
                        18 A541  9F 00315          PUSHAB  SAVSTK+24[R1]                    :
           04 AE             9E  D0 00319          MOVL    @(SP)+, $STR$STRING5+4           :
                             5E  DD 0031D          PUSHL   SP                               :
                        78   A4  9F 0031F          PUSHAB  $STR$STRING4                     :
                             50  DD 00322          PUSHL   R0                               :
                        70   A4  9F 00324          PUSHAB  $STR$STRING2                     :
                             53  DD 00327          PUSHL   R3                               :
                        68   A4  9F 00329          PUSHAB  $STR$STRING0                     :
              6B             06  FB 0032C 22$:     CALLS   #6, XST$JOIN                     :
           44 A2             50  D0 0032F          MOVL    R0, 68(R2)                       :
           2C A2             07  90 00333          MOVB    #7, 44(R2)                       :
                             57  DD 00337          PUSHL   R7                               :
                             7E  D4 00339          CLRL    -(SP)                            :
                             52  DD 0033B          PUSHL   R2                               :
    00000000G EF             03  FB 0033D          CALLS   #3, XPO$PUT                      :
50            64             1C  C5 00344 23$:     MULL3   #28, X, R0                       : 0479
                        08 A540  9F 00348          PUSHAB  SAVSTK+8[R0]                     :
              53             9E  D0 0034C          MOVL    @(SP)+, R3                       :
              52             01  D0 0034F          MOVL    #1, R2                           :
     000000B2 8F             53  D1 00352          CMPL    R3, #178                         : 0482
                             56  12 00359          BNEQ    25$                              :
                             52  D4 0035B          CLRL    R2                               :
                        0C A540  9F 0035D          PUSHAB  SAVSTK+12[R0]                    : 0487
              66             9E  D1 00361          CMPL    @(SP)+, GCA+188                  :
                             63  12 00364          BNEQ    26$                              :
50            64             1C  C5 00366          MULL3   #28, X, R0                       : 0495
                        04 A540  9F 0036A          PUSHAB  SAVSTK+4[R0]                     :
           04 A4             9E  D0 0036E          MOVL    @(SP)+, SAVPTR                   :
                        04 A540  9F 00372          PUSHAB  SAVSTK+4[R0]                     : 0496
                             9E  D4 00376          CLRL    @(SP)+                           :
                             50  D4 00378          CLRL    I                                : 0499
   00000000GEF40        04 B440  D0 0037A 24$:     MOVL    @SAVPTR[I], BAR[I]               :
EE            50  000000A4   8F  F3 00384          AOBLEQ  #164, I, 24$                     :
              6E      0294   8F  B0 0038C          MOVW    #660, $XPO$DESC                  : 0502
           02 AE             02  90 00391          MOVB    #2, $XPO$DESC+2                  :
```

```
                                  03    AE            02  90 00395         MOVB    #2, $XPO$DESC+3                    ;
                                  04    AE       04   A4  D0 00399         MOVL    SAVPTR, $XPO$DESC+4                ;
                                                      57  DD 0039E         PUSHL   R7                                 ;
                                                      7E  7C 003A0         CLRQ    -(SP)                              ;
                                        7E            02  CE 003A2         MNEGL   #2, -(SP)                          ;
                                                 10   AE  9F 003A5         PUSHAB  $XPO$DESC                          ;
                            00000000G   EF            05  FB 003A8         CALLS   #5, XPO$FREE_MEM                   ;
                                                      65  D7 003AF         DECL    SAVSTK                             ; 0505
                            000000B3    8F            53  D1 003B1 25$:    CMPL    R3, #179                           ; 0508
                                                      64  12 003B8         BNEQ    29$                                ;
                                                      52  D4 003BA         CLRL    R2                                 ;
                         50             64            1C  C5 003BC         MULL3   #28, X, R0                         ; 0514
                                                 0C A540  9F 003C0         PUSHAB  SAVSTK+12[R0]                      ;
                                        66            9E  D1 003C4         CMPL    @(SP)+, GCA+188                    ;
                                                      0A  13 003C7         BEQL    27$                                ;
                                                      7E  D4 003C9 26$:    CLRL    -(SP)                              ; 0517
                                           00000000G  8F  DD 003CB         PUSHL   #RNFWFR                            ;
                                                      56  11 003D1         BRB     30$                                ;
                         50             64            1C  C5 003D3 27$:    MULL3   #28, X, R0                         ; 0522
                                                 04 A540  9F 003D7         PUSHAB  SAVSTK+4[R0]                       ;
                                  04    A4            9E  D0 003DB         MOVL    @(SP)+, SAVPTR                     ;
                                                 04 A540  9F 003DF         PUSHAB  SAVSTK+4[R0]                       ; 0523
                                                      9E  D4 003E3         CLRL    @(SP)+                             ;
                                                      50  D4 003E5         CLRL    I                                  ; 0526
                            00000000GEF40        04 B440  D0 003E7 28$:    MOVL    @SAVPTR[I], BAR[I]                 ;
                         EE             50 00000129   8F  F3 003F1         AOBLEQ  #297, I, 28$                       ;
                                        6E     04A8   8F  B0 003F9         MOVW    #1192, $XPO$DESC                   ; 0529
                                  02    AE            02  90 003FE         MOVB    #2, $XPO$DESC+2                    ;
                                  03    AE            02  90 00402         MOVB    #2, $XPO$DESC+3                    ;
                                  04    AE       04   A4  D0 00406         MOVL    SAVPTR, $XPO$DESC+4                ;
                                                      57  DD 0040B         PUSHL   R7                                 ;
                                                      7E  7C 0040D         CLRQ    -(SP)                              ;
                                        7E            02  CE 0040F         MNEGL   #2, -(SP)                          ;
                                                 10   AE  9F 00412         PUSHAB  $XPO$DESC                          ;
                            00000000G   EF            05  FB 00415         CALLS   #5, XPO$FREE_MEM                   ;
                                                      65  D7 0041C         DECL    SAVSTK                             ; 0532
                                        0F            52  E9 0041E 29$:    BLBC    R2, 31$                            ; 0536
                                                      7E  D4 00421         CLRL    -(SP)                              ; 0539
                                           00000000G  8F  DD 00423         PUSHL   #RNFNCS                            ;
                            00000000G   EF            02  FB 00429 30$:    CALLS   #2, ERMA                           ;
                                                          04 00430 31$:    RET                                        ; 0547

; Routine Size:  1073 bytes,    Routine Base:  $CODE$ + 0000
```

```
1 %SBTTL 'SAVRES -- Save & restore handler module'
1 GLOBAL ROUTINE savini : NOVALUE =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine is called from RINIT and changes the storage locations of several variables
1 !       that need to be SAVEd but were previously stored in other block data areas.
1 !
1 ! FORMAL PARAMETERS:      none
1 !
1 ! IMPLICIT INPUTS:        none
1 !
1 ! IMPLICIT OUTPUTS:       none
1 !
1 ! ROUTINE VALUE and
1 ! COMPLETION CODES:       none
1 !
1 ! SIDE EFFECTS:           none discovered yet
1 !
1 !--
1
2     BEGIN
2
2     BIND
2     s = save : $save_block,
2     sa = saveall : $saveall_block;
2
2 !We now reassign the storage locations for the following variables so that
2 !they wil all be stored in the save or saveall block memory.
2
2         sca_f_justify   = s  [save$g_sca_justify];
2         sca_f_fill      = s  [save$g_sca_fill];
2         sca_f_cc_ok     = sa [saveall$g_sca_cc_ok];
2         sca_f_crock     = s  [save$g_sca_crock];
2         sca_f_lm        = s  [save$g_sca_lm];
2         sca_f_rm        = s  [save$g_sca_rm];
2         sca_f_spacing   = s  [save$g_sca_spacing];
2         sca_f_period    = sa [saveall$g_sca_period];
2         sca_f_ker       = s  [save$g_sca_ker];
2         sca_f_bar_char  = sa [saveall$g_sca_bar_char];
2         sca_f_autotitle = s  [save$g_sca_autotitle];
2         sca_f_flags     = s  [save$g_sca_flags];
2
2         gca_f_autopara  = sa [saveall$g_gca_autopara];
2         gca_f_autosubt  = sa [saveall$g_gca_autosubt];
2         gca_f_autotabl  = sa [saveall$g_gca_autotabl];
2         gca_f_autojust  = sa [saveall$g_gca_autojust];
2         gca_f_xcase     = sa [saveall$g_gca_xcase];
2         gca_f_case      = sa [saveall$g_gca_case];
2         gca_f_flag_cmd  = s  [save$g_gca_flag_cmd];
2         gca_f_lwidth    = s  [save$g_gca_width];
2         gca_f_keep      = s  [save$g_gca_keep];
2
2         phan_f_llines   = s  [save$g_phan_llines];
2         phan_f_header   = sa [saveall$g_phan_header];
2         phan_f_paging   = sa [saveall$g_phan_paging];
```

```
;  479     0605  2
;  480     0606  2           hct_f_date        = s  [save$g_hct_date];
;  481     0607  2           hct_f_headers     = s  [save$g_hct_headers];
;  482     0608  2           hct_f_number_page= s   [save$g_hct_number_pag];
;  483     0609  2           hct_f_hd_case     = s  [save$g_hct_hd_case];
;  484     0610  2           hct_f_subtitle    = s  [save$g_hct_subtitle];
;  485     0611  2           hct_f_nmpg_np     = s  [save$g_hct_nmpg_np];
;  486     0612  2
;  487     0613  1       END;                              ! End of SAVINI



                                              00FC 00000        .ENTRY  SAVINI, Save R2,R3,R4,R5,R6,R7                 ; 0549
                         57 00000000G    EF     9E 00002        MOVAB   PHAN+4, R7                                     ;
                         56 00000000G    EF     9E 00009        MOVAB   HCT+4, R6                                      ;
                         55 00000000G    EF     9E 00010        MOVAB   GCA+4, R5                                      ;
                         54 00000000G    EF     9E 00017        MOVAB   SA+32, R4                                      ;
                         53 00000000G    EF     9E 0001E        MOVAB   SCA+100, R3                                    ;
                         52 00000000G    EF     9E 00025        MOVAB   S+4, R2                                        ;
                         63              62     9E 0002C        MOVAB   S+4, SCA+100                                   ; 0579
                   04    A3        04    A2     9E 0002F        MOVAB   S+8, SCA+104                                   ; 0580
                   08    A3              64     9E 00034        MOVAB   SA+32, SCA+108                                 ; 0581
                   0C    A3        08    A2     9E 00038        MOVAB   S+12, SCA+112                                  ; 0582
                   10    A3        0C    A2     9E 0003D        MOVAB   S+16, SCA+116                                  ; 0583
                   14    A3        10    A2     9E 00042        MOVAB   S+20, SCA+120                                  ; 0584
                   18    A3        14    A2     9E 00047        MOVAB   S+24, SCA+124                                  ; 0585
                   1C    A3        08    A4     9E 0004C        MOVAB   SA+40, SCA+128                                 ; 0586
                   20    A3        18    A2     9E 00051        MOVAB   S+28, SCA+132                                  ; 0587
                   24    A3        04    A4     9E 00056        MOVAB   SA+36, SCA+136                                 ; 0588
                   28    A3        1C    A2     9E 0005B        MOVAB   S+32, SCA+140                                  ; 0589
                   2C    A3        20    A2     9E 00060        MOVAB   S+36, SCA+144                                  ; 0590
                         65        E4    A4     9E 00065        MOVAB   SA+4, GCA+4                                    ; 0592
                   04    A5        E8    A4     9E 00069        MOVAB   SA+8, GCA+8                                    ; 0593
                   08    A5        EC    A4     9E 0006E        MOVAB   SA+12, GCA+12                                  ; 0594
                   0C    A5        E0    A4     9E 00073        MOVAB   SA, GCA+16                                     ; 0595
                   50    A5        F4    A4     9E 00078        MOVAB   SA+20, GCA+84                                  ; 0596
                   7C    A5        F0    A4     9E 0007D        MOVAB   SA+16, GCA+128                                 ; 0597
                 0080    C5        28    A2     9E 00082        MOVAB   S+44, GCA+132                                  ; 0598
                 0088    C5        24    A2     9E 00088        MOVAB   S+40, GCA+140                                  ; 0599
                 00C8    C5        2C    A2     9E 0008E        MOVAB   S+48, GCA+204                                  ; 0600
                         67        48    A2     9E 00094        MOVAB   S+76, PHAN+4                                   ; 0602
                   18    A7        F8    A4     9E 00098        MOVAB   SA+24, PHAN+28                                 ; 0603
                   24    A7        FC    A4     9E 0009D        MOVAB   SA+28, PHAN+40                                 ; 0604
                         66        34    A2     9E 000A2        MOVAB   S+56, HCT+4                                    ; 0606
                   04    A6        38    A2     9E 000A6        MOVAB   S+60, HCT+8                                    ; 0607
                   08    A6        40    A2     9E 000AB        MOVAB   S+68, HCT+12                                   ; 0608
                   10    A6        30    A2     9E 000B0        MOVAB   S+52, HCT+20                                   ; 0609
                   14    A6        44    A2     9E 000B5        MOVAB   S+72, HCT+24                                   ; 0610
                   28    A6        3C    A2     9E 000BA        MOVAB   S+64, HCT+44                                   ; 0611
                                                04 000BF        RET                                                    ; 0613

; Routine Size:  192 bytes,    Routine Base:  $CODE$ + 0431


;  488         0614  1 END                               ! End of module
;  489          0615  0 ELUDOM



;                                  PSECT SUMMARY
;
;       Name                       Bytes                        Attributes
;
;   $OWN$                            128  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;   $PLIT$                           134  NOVEC,NOWRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;   $CODE$                          1265  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)




;                             Library Statistics
;
;                                            -------- Symbols --------      Pages       Processing
;       File                                 Total    Loaded   Percent      Mapped      Time
;
;   _$255$DUA28:[SYSLIB]XPORT.L32;1            590       128        21        252         00:00.1
;   _$255$DUA28:[RUNOFF.SRC]DSRLIB.L32;1      1248       103         8         86         00:00.3




;                                   COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:SAVRES/OBJ=OBJ$:SAVRES MSRC$:SAVRES/UPDATE=(ENH$:SAVRES)

; Size:           1265 code + 262 data bytes
; Run Time:          01:06.4
; Elapsed Time:      01:57.8
; Lines/CPU Min:        556
; Lexemes/CPU-Min:101574
; Memory Used:  417 pages
; Compilation Complete
```

0348 AH-BT13A-SE
VAX/VMS V4.0

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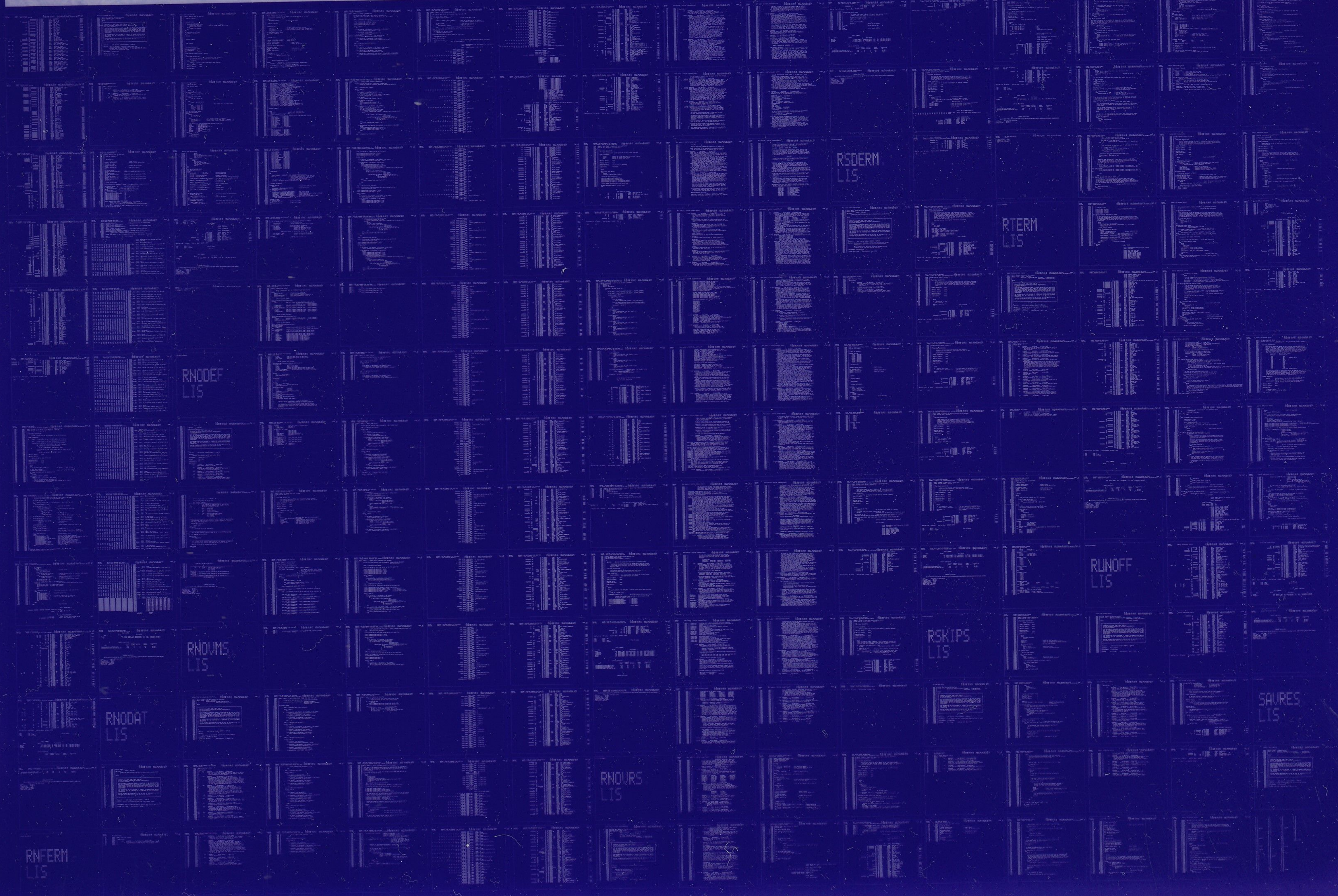
RSDERM
LIS

RTERM
LIS

RNODEF
LIS

RUNOFF
LIS

RNOVMS
LIS

RSKIPS
LIS

RNODAT
LIS

SAVRES
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RNFERM
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